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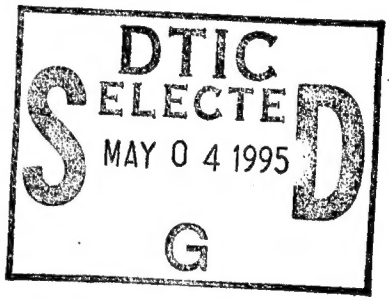
C2TC SUPPORT

Mei Technology Corporation

John J. Guba



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APPROVED: Anthony F. Snyder

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FOR THE COMMANDER: John A. Graniero

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INTRODUCTION

This report is being submitted in satisfaction of CLIN 0002AS of Air Force Contract F30602-91-D-0140, Task 0017 dated 92 Nov. 06. The requirements of the contract were to design upgrades for the C^2TC Laboratory and mobile components. To meet this requirement, it was necessary to provide research and development support to various tactical systems and laboratory elements working directly with Rome Laboratory Command and Control Technology Center (C^2TC) personnel. It was necessary to develop specific techniques of fabrication and contraction of command, control and communication systems interrelated with the C^2TC.

SUPPORT ITEMS

There were several major elements requiring technical support throughout the time frame of this effort. The most visible of these were as follows:

APS Support, Blue Flag and Laboratory.
Virtual Reality Laboratory.
Television Information Display, Building 3.
C^2TC Mechanical/Electrical Support.
Physical Plant Engineering Support.

ADVANCED PLANNING SYSTEM SUPPORT

This effort improved the design and fabrication of a mobile system to house ten working stations of individual computer terminals for the AF Blue Flag exercises at Eglin AFB, Florida. To accomplish this, equipment workstation and support functions were designed, fabricated and installed in a thirty foot van. This was a completely integrated system consisting of power generating equipment, environmental control and power supplies in addition to the main electronic system. The mobile system was dispatched to Eglin AFB twice within the contract period, each time, however, in different configurations. Each time, the system performed its total function in complete satisfaction. The equipment is currently in standby at Rome Laboratory.

PHYSICAL PLANT - ENGINEERING SUPPORT

Several achievements which involved a continuous and sustained series of efforts aimed at providing technical information of a practical value on design for upgrade of Building 3 facilities. These efforts involved engineering management design, concepts, scope of work and application of engineering disciplines to the design fabrication and life cycle of several Building 3 areas. Included in these efforts were the systems engineering, management flow, functional flow diagrams, requirements associations, design revisions and inspections. The aim of these efforts was to provide information of a practical value on a

large variety of subjects that are important to contractors and builders. This data includes requirements of the design, description of the work and general engineering knowledge of construction to insure adequate technical performance on the part of fabrication contractors.

VIRTUAL REALITY LABORATORY

This program was provided for design of the Virtual Reality Laboratory. This laboratory will be used to evaluate, demonstrate and develop concepts associated with Virtual Reality as applied to Air Force Command and Control. This laboratory is used to provide and output presentation and man/machine interface testbed for the Media Resource Controller (MRC)/Advanced Multimedia Information Distribution System (AMIDS) ATTD. The MRC/AMIDS effort is closely paralleled in the research area by the "Viewstation Research Program on Distribution Video System" currently underway between DARPA and MIT for which C3AB is the monitoring agent.

The design of the facility involved six major areas, Electrical/Electronic Platform Furnishing, Operation Chair and installation and projection screens. A two step platform was designed and installed in part, with the computer floor. The electrical systems in the control area were completely gutted and re-wired to provide all the necessary lighting, outlets and fixtures necessary for the function of the lab.

Special observation desks were designed which provides working areas for the observers. The main operator chair was designed to provide complete convenience for the operating equipment and comfort. It is mounted on a separate platform to attain proper height.

A front and rear screen was designed and fabricated by the base shops. The rear screen lifts out of place after proper focus of the two projectors has been attained. The screens were designed with two fixed side light deflectors.

Special mounts were designed to support the two Espirit 2000D projectors, piggy back. The whole system is suspended from the ceiling beams and two mechanical jacks built into the assembly provide minute adjustments for the projectors.

BUILDING 3 VIDEO BULLETIN BOARD

The purpose of this effort was to visually display information dealing with current events in the Rome Laboratory, administrative data and other items of interest to the laboratory employees and visitors.

Rome Laboratory procured 25 inch Zenith television sets and modified each to prevent changing from the preset transmitting channel. A like number of programmable electronic switchs and mechanical video support systems were procured to complete the system.

The building was surveyed for optimum locations for installation of the videos. This was followed by a similar survey to locate and route power and TV signals. Upon completion of this survey, the locations were mapped and mounting of support brackets and installation of power and signal lines were designed. The system was put on line and is functioning satisfactorily.

C^2TC SUPPORT (MECHANICAL/ELECTRICAL)

General design support to the C^2TC Lab was the most diversified of all the efforts undertaken on this contract. The number of items requiring design and fabrication ran into the hundreds, requiring nearly two hundred drawings. These were required to keep the lab current and in a state of readiness for all test, evaluations and demonstrations.

Included in the over - all effort are System Integration and Lab Integration elements. Work varied from small integral parts to removal of walls and installation of large screen displays. The effort is an on-going endeavor to support the lab in its daily functions. There is no final product from the work unit as it deals with daily laboratory processes and supports continual upgrades to the facility.

MISSION

OF

ROME LABORATORY

Mission. The mission of Rome Laboratory is to advance the science and technologies of command, control, communications and intelligence and to transition them into systems to meet customer needs. To achieve this, Rome Lab:

a. Conducts vigorous research, development and test programs in all applicable technologies;

b. Transitions technology to current and future systems to improve operational capability, readiness, and supportability;

c. Provides a full range of technical support to Air Force Materiel Command product centers and other Air Force organizations;

d. Promotes transfer of technology to the private sector;

e. Maintains leading edge technological expertise in the areas of surveillance, communications, command and control, intelligence, reliability science, electro-magnetic technology, photonics, signal processing, and computational science.

The thrust areas of technical competence include: Surveillance, Communications, Command and Control, Intelligence, Signal Processing, Computer Science and Technology, Electromagnetic Technology, Photonics and Reliability Sciences.